

AMENDMENTS TO THE DRAWINGS

Figure 1 is amended to add reference numerals 42 and 42'; and to change reference numeral 17 on the right hand side of the drawing to 17'.

New Figure 1a is added in a separate sheet to show the configuration described in the application in paragraph [0012] on page 3.

Attachments: Replacement sheet (1)

New sheet (1)

REMARKS

Claims 1-3, 5-11, and 14-17 are pending in the application.

By the foregoing Amendment, claims 1 and 17 are amended to add “trench cutting means for cutting trenches of rectangular cross-section” as a positive limitation, rather than in the preamble; and also are amended for improved readability and conformity with U.S. format. Claims 1-3, 5, 6, 9, 11, and 17 are amended to recite the cutting elements and the control device in means-plus-function format, inasmuch as their functions are already recited in the claims.

Figure 1 is amended to add reference numerals 42 and 42' for the parallel rotation axes of the cutting wheels 12 and 12'; and to change reference numeral 17 on the right hand side of the drawing to 17'.

New Figure 1a is added to show the configuration described in the application in paragraph [0012] on page 3, which states: “In the case of a particularly preferred trench wall cutter a random number of cutting wheels is provided and have parallel rotation axes. A particularly preferred embodiment has four cutting wheels, whereof in each case two are arranged pairwise in rotary manner about the same rotation axis.”

The specification is amended for conformity with the drawing amendments.

These changes are believed not to introduce new matter, and entry of the Amendment is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections, and withdraw them.

Objections to the Drawings

In paragraph 2 of the Office Action, the drawings were objected to as not showing every feature of the invention specified in the claims, specifically, the trench of rectangular cross-section, third and fourth cutting wheels, and the second common rotation axis. The objection is traversed with respect to the showing of the trench of rectangular cross-section, as the trench is not a feature of the invention, but is merely the “product” produced through operation of the invention, and therefore is not believed to be required under 37 CFR § 1.83(a). The objection is overcome with respect to the third and fourth cutting wheels, and the second common rotation axis by the attached drawing corrections, by which Figure 1 is amended to add reference numerals 42 and 42’ for the two rotation axes and Figure 1a is added to show the four cutting wheels and their rotation axes.

Rejections under 35 U.S.C. § 103

In paragraph 5 of the Office Action, claims 1-3, 5-11, and 14-17 were rejected under section 103(a) as being unpatentable over Bauer et al. in view of Smith et al. This rejection is respectfully traversed as being based on a combination of references that does not teach or suggest the claimed invention.

In paragraph 5 of the Office Action, *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981) was cited for the proposition that “the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test

is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”

The citation to *Keller* mischaracterizes Applicant’s argument. Applicant is *not* arguing that the features of Smith (the secondary reference) cannot be bodily incorporated into the structure of Bauer et al. (the primary reference). Nor is Applicant arguing a lack of express suggestion for the combination. Rather, Applicant is arguing that:

- assuming for the sake of argument that the features of Smith *can* be bodily incorporated into the structure of Bauer et al., that fact would not be sufficient to establish a *prima facie* case of obviousness
- the Office Action does not establish a *prima facie* case of obvious because the proposed modification of Bauer et al. in accordance with the teachings of Smith would render Bauer et al. unsatisfactory for its intended purpose
- the Office Action further does not establish a *prima facie* case of obvious because the proposed modification of Bauer et al. in accordance with the teachings of Smith would change Bauer’s principle of operation

The Examiner is respectfully referred to MPEP 2143.01, and particularly to sections III, V, and VI thereof, which are quoted herein for the Examiner’s convenience:

III. FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH PRIMA FACIE OBVIOUSNESS

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a

capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” 916 F.2d at 682, 16 USPQ2d at 1432.). *See also In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

V. THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (Claimed device was a blood filter assembly for use during medical procedures wherein both the inlet and outlet for the blood were located at the bottom end of the filter assembly, and wherein a gas vent was present at the top of the filter assembly. The prior art reference taught a liquid strainer for removing dirt and water from gasoline and other light oils wherein the inlet and outlet were at the top of the device, and wherein a pet-cock (stopcock) was located at the bottom of the device for periodically removing the collected dirt and water. The reference further taught that the separation is assisted by gravity. The Board concluded the claims were prima facie obvious, reasoning that it would have been obvious to turn the reference device upside down. The court reversed, finding that if the prior art device was turned upside down it would be inoperable for its intended purpose because the gasoline to be filtered would be trapped at the top, the water and heavier oils sought to be separated would flow out of the outlet instead of the purified gasoline, and the screen would become clogged.).

“Although statements limiting the function or capability of a prior art device require fair consideration, simplicity of the prior art is rarely a characteristic that weighs against obviousness of a more complicated device with added function.” *In re Dance*, 160 F.3d 1339, 1344, 48 USPQ2d 1635, 1638 (Fed. Cir. 1998) (Court held that claimed catheter for removing obstruction in blood vessels would have been obvious in view of a first reference which taught all of the claimed elements except for a “means for recovering fluid and debris” in combination with a second reference describing a catheter including that means. The court agreed that the first reference, which stressed simplicity of structure and taught emulsification of the debris, did not teach away from the addition of a channel for the recovery of the debris.).

VI. THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.” 270 F.2d at 813, 123 USPQ at 352.).

As set forth in the SECOND DECLARATION UNDER 37 CFR § 1.132 of Josef Haas submitted herewith, U.S. Patent No. 4,694,915 to Bauer et al. (“Bauer”) relates to a state-of-the-art trench wall cutter in which two sets 10 of cutting wheels 11 are provided at the bottom of a frame 5.

Bauer et al.’s cutting wheels 11 are unidirectional; that is, each cutting wheel only rotates in one direction. In a state-of-the-art trench wall cutter such as Bauer et al.’s, the cutting wheels are not bidirectional; that is, their directions of rotation are not reversible between rotation in the clockwise and counter-clockwise directions. ***Bidirectionality is not taught or suggested by Bauer et al.*** This unidirectional mode of rotation can be seen in Bauer et al.’s Figure 1, in which unnumbered arrows indicate the respective rotation directions of the cutting wheels 11. As shown in Figure 1, the left-hand side cutting wheels 11 rotate counterclockwise and right-hand side cutting wheels 11 rotate clockwise. This rotation is also described at column 3, lines 42-45 (“When in

operation, the two cutting wheel sets 10 rotate in opposite directions in the manner indicated by the two arrows in FIG. 1 and thus supply the cut material to the suction means with pump 7.”).

Due to the chosen directions of rotation, Bauer et al.’s cutting wheels 11 serve two purposes. First of all, they cut and loosen soil material located below the trench wall cutter. Secondly, they also convey the loosened earth material and convey it to the suction device 7 arranged centrally between the cutting wheels, so that the suction device 7 can transport the loosened earth material out of the trench.

Theoretically, it would be possible to modify Bauer et al. as proposed in the Office Action, that is, to make Bauer et al.’s cutting wheels 11 bidirectional and to add cutting elements on a control device as taught by U.S. Patent No. 4,120,106 to Smith et al. (“Smith”). However, reversing the direction of rotation of such modified cutting wheels would disrupt their conveying function. If the direction of rotation were reversed, the cutting wheels 11 would transport the loosened soil material away from the suction device 7, resulting in a jam of the trench wall cutter in the ground. Therefore, the proposed modification of Bauer et al. in accordance with the teachings of Smith et al. would render Bauer et al.’s trench wall cutter unsatisfactory for its intended purpose; and in accordance with MPEP 2143.01, section V, *there is no suggestion or motivation to make the proposed modification.*

Further, the suggested combination of references would require a substantial reconstruction and redesign of the elements of Bauer et al.’s trench wall cutter, as well as a change in the basic principle under which the construction of Bauer et al.’s trench was cutter was designed to operate, in order for the modified trench wall cutter to avoid the jamming problem and operate satisfactorily

for its intended purpose. Therefore, the proposed modification of Bauer et al. in accordance with the teachings of Smith et al. would change the principle of operation of Bauer et al.'s trench wall cutter; and in accordance with MPEP 2143.01, section VI, *the teachings of the references are insufficient to render the claims prima facie obvious.*

Finally, because the resulting trench wall cutter would jam if the cutting wheels of Bauer et al. were replaced with the cutting wheels of Smith et al. and the rotation direction of the cutting wheels were reversed during operation as in Smith et al., Smith et al.'s second cutting element would not be able to remove soil material when the direction of rotation of the cutting wheel was reversed. Therefore, the claimed invention would not result from the proposed modification of Bauer et al. in accordance with the teachings of Smith et al.

A unidirectional mode of rotation where the left-hand cutting wheels rotate counterclockwise, the right-hand cutting wheels clockwise, is also provided in the remaining documents previously made of record and cited as disclosing trench wall cutters (cf. Endo (see arrows in Figures 2 and 5), Sourice (see arrows in Figure 1 and description at column 3, lines 13-14), and Charlier (see arrows in Figure 1)). None of these references teach or suggest a trench wall cutter in which the direction of rotation of the cutting wheels is reversible.

In view of the foregoing, it is respectfully submitted that the invention as recited in independent claims 1 and 17, and in claims 2, 3, 5-11 and 14-16 depending from claim 1, is patentable over the prior art of record; and that the rejection should be withdrawn.

Conclusion

All objections and rejections have been complied with, properly traversed, or rendered moot. Thus, it now appears that the application is in condition for allowance. Should any questions arise, the Examiner is invited to call the undersigned representative so that this case may receive an early Notice of Allowance.

Favorable consideration and allowance are earnestly solicited.

Respectfully submitted,

JACOBSON HOLMAN PLLC

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Attachments: Replacement drawings sheet (1)
New drawing sheet (1)
Second Declaration Under 37 CFR § 1.132 of Josef Haas